

WHAT IS CLAIMED IS:

1. A method for bonding patterned imprint by transferring, comprising following steps:

(a) providing a first module having a molding substrate, a molding layer and a patterned molding features, and a second module having a substrate;

wherein said molding layer and said patterned molding features are located on said molding substrate;

(b) coating a release layer on said molding features;

(c) filling a transfer layer into the recess which is located between the patterned molding features;

(d) coating an adhesion layer on said substrate of said second module;

(e) contacting and bonding said second module and said first module together for transferring said transfer layer to said substrate of said second module; and

(f) separating said second module from said first module.

2. The method as claimed in claim 1, wherein said molding substrate is selected from the group consisting of silicon, glass, metal, ceramics, and polymer.

3. The method as claimed in claim 1, wherein the depth or the height of said recesses formed between said patterned molding features ranges from 1nm to 10mm.

4. The method as claimed in claim 1, wherein the width of said

transfer layer formed between said recess ranges from 1nm to 10mm.

5. The method as claimed in claim 1, wherein the ratio of the depth to the width of said transfer layer ranges from 0.1 to 10.

5 6. The method as claimed in claim 1, wherein said transfer layer is formed through spin coating, physical vapor deposition (PVD), chemical vapor deposition (CVD), plating, electroless plating, sol-gel process and FHD.

10 7. The method as claimed in claim 1, wherein said transfer layer is selected from the group consisting of semi-conductors, dielectric materials, high polymer materials, metal and combinations thereof.

15 8. The method as claimed in claim 1, wherein the height of said transfer layer is larger or equal to the depth of said molding features.

9. The method as claimed in claim 1, wherein said step (e.) is performed by heating, pressurization, laser pulses, ultraviolet exposure, vacuum or ultrasonication, to bond said first module and said second module.

20 10. The method as claimed in claim 1, wherein bonding said transfer layer of said first module to said substrate of said second module is performed by direct contact.

11. The method as claimed in claim 1, wherein said transfer layer is made of multi-laminates.

12. The method as claimed in claim 11, wherein said multi-laminates is produced through forming said transfer layer on said substrate of said second module repeatedly at the same location.
- 5 13. The method as claimed in claim 1, wherein said transfer layer is bonded to said substrate step by step.
14. The method as claimed in claim 1, wherein said step (e) further comprises an alignment step between said patterned molding features and said substrate before performing step (e).
- 10 15. The method as claimed in claim 1, wherein said molding layer and said mold substrate is integrated into a unity.
16. The method as claimed in claim 1 is further comprising a step (g) using said transfer layer as a lithographic mask to transfer the pattern of said transfer layer to said substrate by etching.
- 15 17. The method as claimed in claim 16, wherein said etching method is dry etching or wet etching.
18. An apparatus for bonding lithographic imprints by adhering means comprising:
- 20 a first holder for holding and carrying a first module having a mold substrate, a molding layer and a patterned transfer layer;
- a second holder for holding and carrying a second module having a substrate and an adhesion layer;
- an aligning unit positioned at one side of said second holder for moving and aligning said first holder or said second holder;

at least one sensor for sensing and parallelizing the relative positions between said first module and said second module; and

a controller for receiving electrical signals from said sensor, and for transmitting signals to said first holder or said second holder for aligning
5 said two modules;

wherein said sensor transmits electrical signals of the positions of said two holders to said controller, and then said controller controls the align unit electrically to align said first holder and said second holder horizontally and to move said first holder and said second holder vertically
10 for combining said first module and said second module.

19. The apparatus as claimed in claim 18 further comprising a light source, a heater, an ultrasonicator, or a pressure head for bonding said transfer layer on said second module.